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(54) INSTALLATION DEVICE OF TRACTION
MACHINE OF ELEVATOR

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Specification



1. Title of the Invention

INSTALLATION DEVICE OF TRACTION MACHINE OF ELEVATOR

Claim

An installation device of a traction machine of an elevator, in which a horizontal pulling type traction machine of an elevator, having a machine room provided on a lower side of a hoisting and lowering passage, is installed on a foundation for vibration isolation, characterized in that a rubber isolator on the side of a drive motor end of the traction machine is provided on a lower side of a machine mount attached to a lower portion of the traction machine, and in order to apply a downward compression load to the rubber isolator, a rubber isolator on the side of a sheave of the traction machine is provided an appropriate distance closer to the drive motor from an axis of the sheave.

3. Detailed Description of the Utility Model

The present invention relates to an improved vibration isolating installation device of a horizontal pulling type traction machine of a basement type elevator.

First, a conventional installation device of a horizontal pulling type traction machine of a basement type elevator will be described with reference to Figure 1 and Figure 2.

In Figure 1, reference numeral 1 denotes a car; 2, a counterweight; 3, a hoisting rope; 4a and 4b, deflector sheaves; and 5, a horizontal pulling type traction machine. In the above-described type of elevator, generally, the car 1 and the counterweight 2 are connected by the hoisting rope 3, and the plurality of deflector sheaves 4a and 4b are provided and driven by a sheave of the traction machine 5 as shown.

Figure 2 shows an example of a vibration isolating installation device for supporting the traction machine 5 on a foundation, and reference numeral 5a denotes the sheave of the traction machine; 5b, a drive motor; 6, 6a, 7, and 8, rubber isolators; 9, a machine mount formed of a pair of I-shaped steels on which the traction machine 5 is attached; and P, a pair of vertical posts of a machine room.

In this case, the deflector sheaves 4a and 4b are placed obliquely upward and laterally of the traction machine 5, and the resultant force of the hoisting rope 3 is applied to the sheave 5a of the traction machine obliquely upward. Thus, the rubber isolators 6 and 6a are provided on the machine mount 9, the rubber isolator 6 on the side of the end of the drive motor 5b is constrained at a top thereof by a bracket S secured to the foundation, and the rubber isolator 6a on the side of the end of the sheave 5a is constrained at a top thereof by a bracket Sa secured to the post P. The rubber isolator 7 is provided between a front end of the machine mount 9 (hereinafter, the left side in the figure is the front side) and the post P and counteracts a forward horizontal load. The rubber isolator 8 supports, on the foundation, the weight of the traction machine 5 including the machine mount 9 before the hoisting rope 3 hoists and supports the car 1 and the counterweight 2.

In such an arrangement, however, the rubber isolator 6 on the side of the end of the motor 5b needs to be placed backward, away from the motor end in order to prevent interference with the motor 5b. Actually, space of the machine room is generally extremely limited, and in many cases, it is difficult to place the rubber isolator on the side of the motor end in the space.

The present invention solves the above described problems, and provides an installation device of a traction machine of an elevator in which a rubber isolator is provided below a machine mount so as to prevent interference with a motor of the traction machine

Now, an embodiment of the present invention will be described with reference to Figure 3 and Figure 5. In the figures, the same reference numerals as in Figure 1 and Figure 2 denote the same (corresponding) parts.

Reference numeral B denotes base members formed of a pair of I-shaped steels fixed on a foundation in an embedded manner, and a pair of posts P stand thereon. In machine mounts 9 formed of a pair of I-shaped steels on which a traction machine 5 is attached, lower portions close to front ends thereof are laterally connected and secured

by a connecting member 10 formed of an I-shaped steel, and blocks 11 are secured beneath the I-shaped steel members of the machine mounts 9 at rear ends thereof. A rear rubber isolator 6 is provided between each block 11 below a motor 5b and the base member B, and a front rubber isolator 6a is provided between a bracket Sa secured to the inside of each post P and an upper surface of each end of the connecting member 10. A rubber isolator 7 for a forward horizontal load is provided between the bracket Sa protruding laterally from an upper surface of each I-shaped member of the machine mount 9 and a rear surface of the post P, and a rubber isolator 8 for a tare weight of the traction machine is provided only on a front I-shaped steel member of the base member B.

Front and rear providing positions of the rubber isolators 6 and 6a are selected by placing the front rubber isolator 6a an appropriate distance close to the motor 5b from an axis of a sheave 5a so that an upward compression load is applied to the rubber isolator 6a on the side of a front sheave of the machine mount 9, and a downward compression load is applied to the rubber isolator 6 on the side of a rear motor end against the obliquely upward resultant force of a hoisting rope 3 applied to the axis of the sheave 5a of the traction machine 5 that is a point of application. An appropriate positional relationship between the rear rubber isolator 6 and the front rubber isolator 6a for applying the downward reaction to the rear rubber isolator 6 may be obtained by calculating the levels of vertical and horizontal components of the resultant force of the rope, and the level and the direction of each reaction caused by a geometric position of each vibration isolation fulcrum (including the rubber isolator 7) by a known simple static force balance equation (not shown).

The center of gravity of the traction machine 5 including the machine mount 9 is located between the rubber isolators 6 and 6a, and the center of gravity before hoisting and supporting a car 1 and a counterweight 2 can be supported on the base member B by the rubber isolators 8 and 6.

Figure 6 shows another embodiment of a support device of a rear rubber isolator 6 corresponding to Figure 5, and the same reference numerals as in Figure 5 denote the same (corresponding) parts.

Reference numeral 12 denotes a connecting member that laterally connects and secures rear ends of I-shaped members of machine mounts, and each rear rubber isolator 6 is provided between a lower surface of the connecting member 11 and an upper surface of a short I-shaped steel member Ba secured on a base member B. This may also increase lateral rigidity of the machine mount 9.

As described above, according to the present invention, the rubber isolator on the side of the drive motor end of the horizontal pulling type traction machine of the basement type elevator is provided below the machine mount secured beneath the traction machine, and the rubber isolator on the side of the sheave of the traction machine is provided an appropriate distance closer to the drive motor from the axis of the sheave so as to apply the downward compression load to the rubber isolator.

Therefore, the rubber isolator on the side of the motor end is not likely to interfere with the drive motor, and can be placed below the motor, thus reducing the length of the back portion of the machine mount to reduce the space of the machine room. Further, the downward compression force is applied to the rubber isolator, so that the rubber isolator can be directly supported on the foundation or the base member fixed on the foundation in an embedded manner, on the lower surface of the machine mount. This eliminates the need for a special bracket or the like that locks and supports the rubber isolator from above as in the conventional example.

4. Brief Description of the Drawings

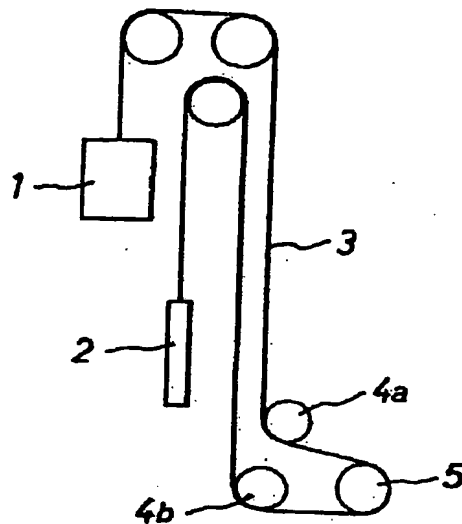
Figure 1 schematically shows a placement of a hoisting rope of a basement type elevator, Figure 2 is a side view of essential portions of an example of a conventional vibration isolating installation device of a horizontal pulling type traction machine, Figures 3 to 5 show an embodiment of an installation device of a traction machine of an elevator according to the present invention, Figure 3 is a side view of essential portions

thereof, and Figures 4 and 5 are views taken along the arrowed lines IV-IV, and V-V in Figure 3, and Figure 6 shows another embodiment and corresponds to Figure 5.

- 3 hoisting rope
- 4 deflector sheave
- 5 horizontal pulling type traction machine
- 5a sheave
- 5b drive motor
- 6 rubber isolator on the side of drive motor end
- 6a rubber isolator on the side of sheave
- 9 machine mount

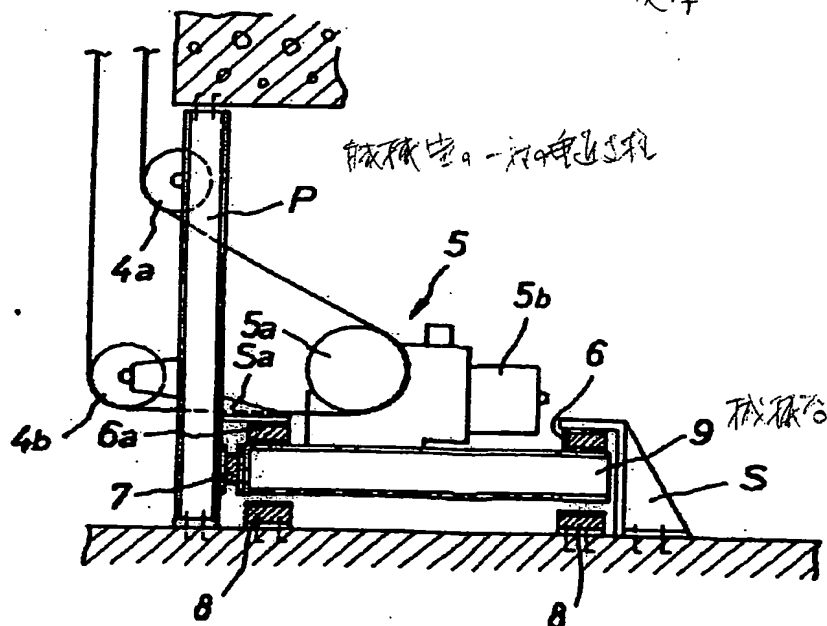
Agent, Shinichi Kuzuno (and other 1)

第 1 図



第 2 図

従来

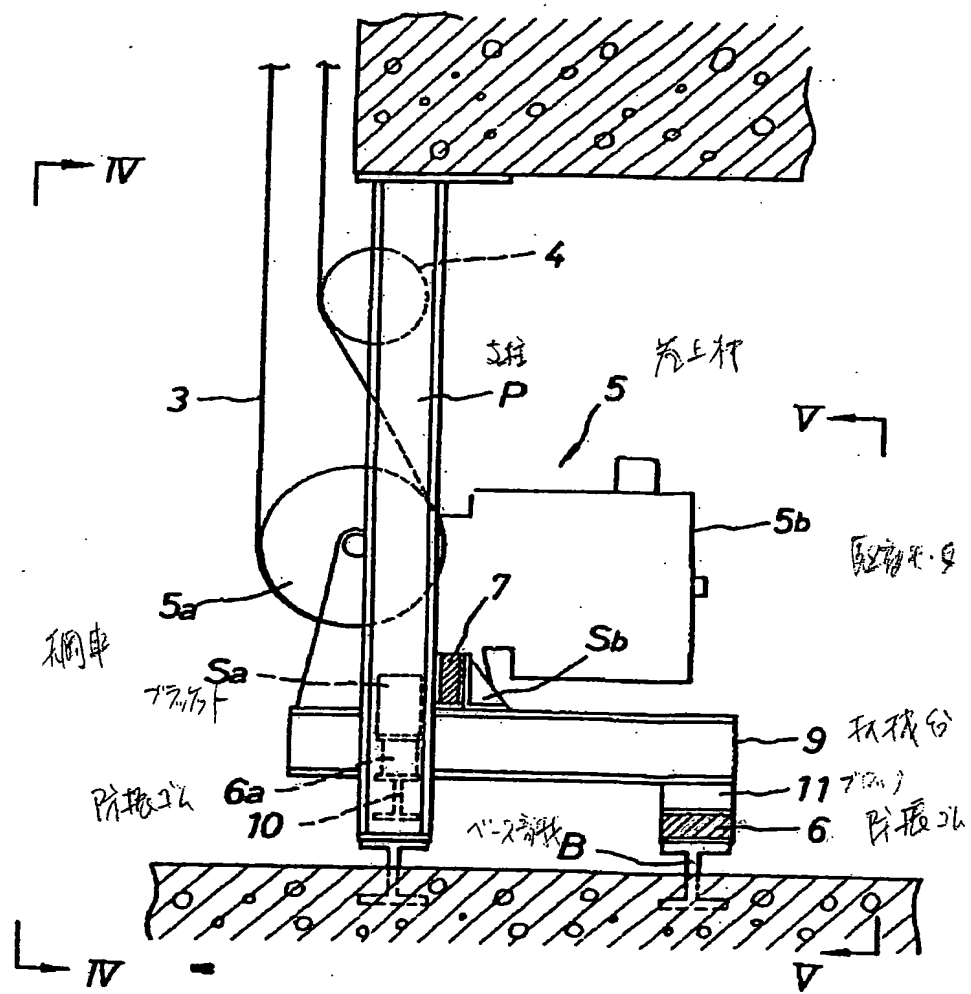


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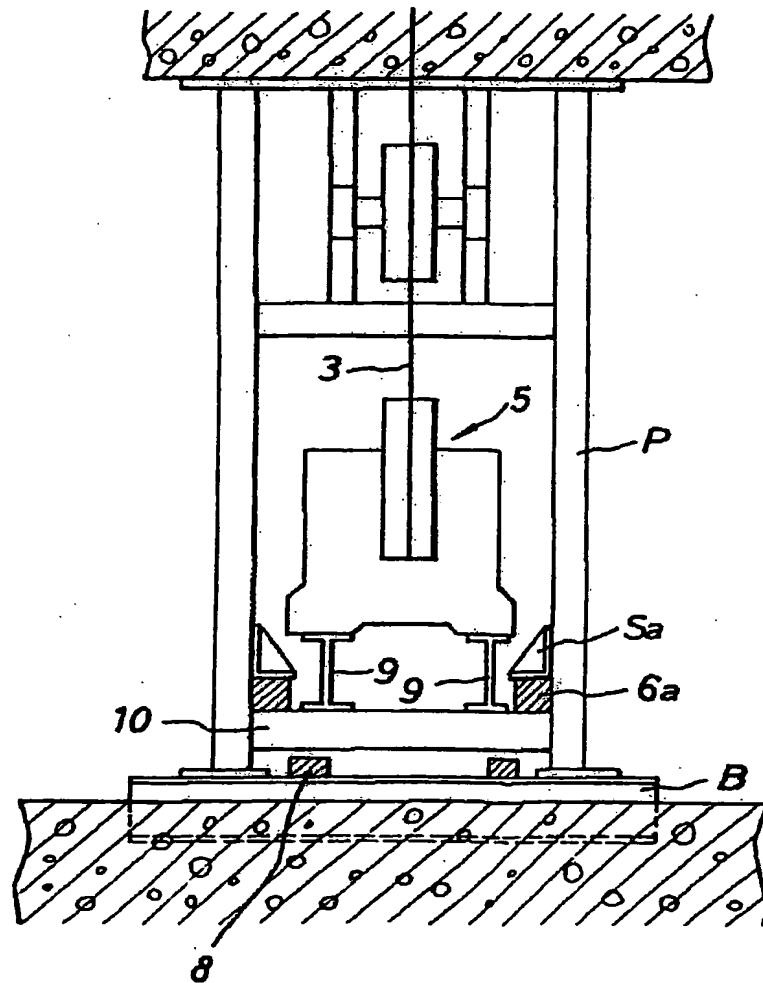
第 3 图



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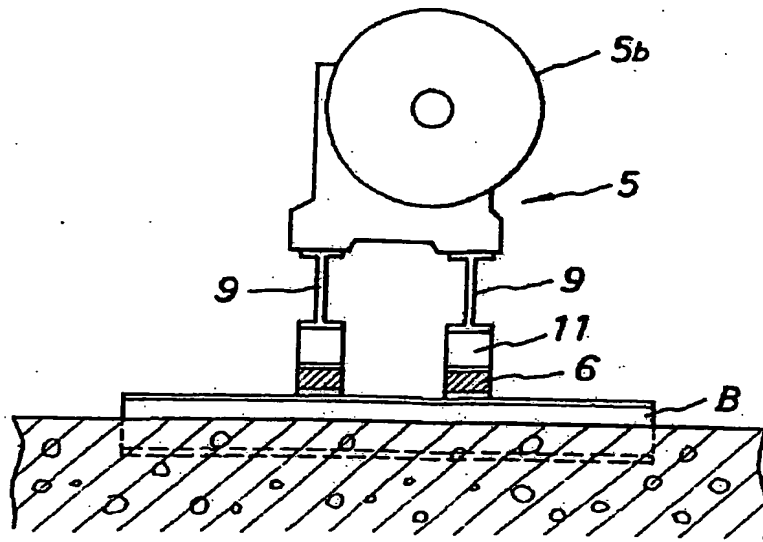
第 4 図



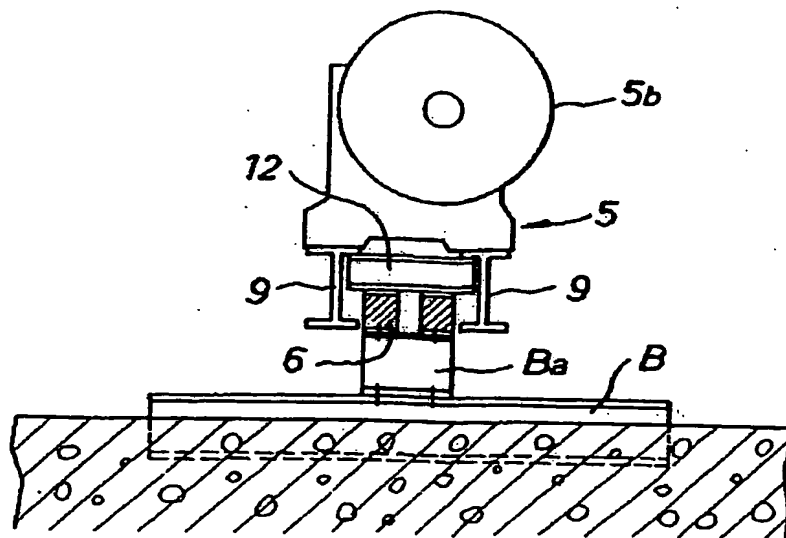
代理人 島 野 信 一

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第 5 圖



第 6 圖



代理人 葛野 信一

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実開 59-51171

Written Amendment

December 6, 1982



Commissioner of the Patent Office

1. Indication of the Case:

Utility Model Application No. 57-148479

2. Title of the invention:

INSTALLATION DEVICE OF TRACTION MACHINE OF ELEVATOR

3. Person Making Amendment:

Relationship with the Case:

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5. Object of Amendment:

The drawing of the specification (Figure 4)

6. Content of Amendment

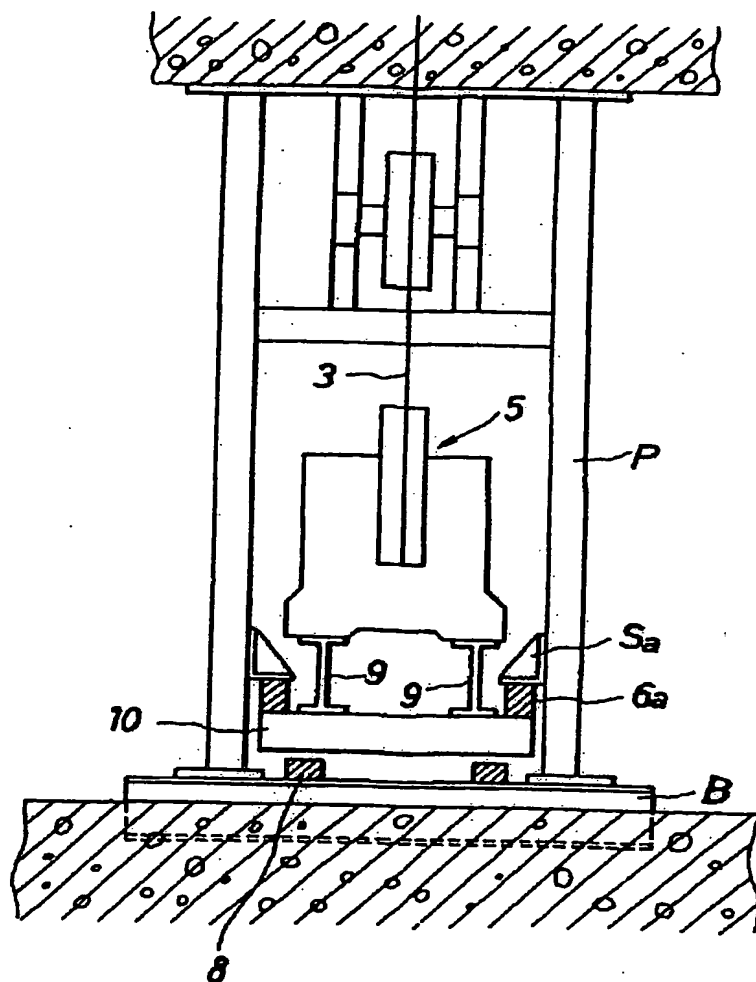
Figure 4 in the drawing of the specification is amended as in the attached paper.

7. Inventory of attached document:

The drawing showing Figure 4 after amendment One copy

Concluded

第 4 図



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代理人 葛野信一

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